REMARKS

Response to Election/Restriction Requirement

The applicants acknowledge the Examiner's restriction of the present application to Group 4, as shown in Figs. 13-19, with the base member not extending beyond the tapered end of the wedge. The applicants also acknowledge the withdrawal of claims 6, 8, and 15 from further consideration as relating to a non-elected species.

Drawings

The drawings are objected to for failing to show the 'taller end', an 'opposed tapered end', 'manufactured valley truss component combination', 'structural wood members', 'manufactured wood roof truss systems', and 'opposing sides of the wedge'. The amendments herein to the claims have deleted all of the 'objected to' phrases. Therefore, the applicants respectfully request that the Examiner withdraw her rejection of the drawings.

Specification

The Specification is objected to for failing to provide proper antecedent basis for claimed subject matter. Objections relate to the following language in claims 1 and 12, 'manufactured valley truss component combination', 'structural wood members', and 'manufactured wood roof truss system', and 'opposing sides of the wedge'. Through amendments to the claims, the applicants have deleted all four of the above-noted phrases to which the Examiner has objected. Therefore, the applicants respectfully request that the Examiner withdraw her rejection of the Specification. Also, the Examiner notes that the 'solid wedge' mentioned in claims 3 and 16 is

interpreted as being a solid figure and not solid in volume. Through claim amendments the applicants have deleted the word 'solid' and replaced it with language that more clearly identifies the structure intended to be claimed.

Claim Rejection – 35 U.S.C. 112

Claim 1 is rejected under 35 USC 112, second paragraph, as being indefinite. In claim 1, the phrase 'can be' is unclear as to its limitations. The applicants have deleted the words 'can be' and provided replacement language that is not indefinite. Therefore, the applicants respectfully request that the Examiner withdraw her rejection of claim 1 under 35 USC 112.

Claim Rejection – 35 U.S.C. 102

Claims 1, 2, 4, 7, 11-14, 17, and 19 are rejected under 35 USC 102(b) as being anticipated by Leavens. The Leavens invention is an anchoring bracket for use in deck construction that attaches one or more horizontally-extending boards that are substantially parallel to one another to a transversely positioned joist. It has a substantially horizontally-extending 'rain-spacer side' and a substantially vertically-extending 'joist attachment side'. The 'rain-spacer side' has a 'spacing portion' that overlays the top of a supporting joist during bracket use and an 'extended portion' that does not overlay the supporting joist, the distal end of 'extended portion' being connected to the distal end of the upper 'angled portion' of the 'joist attachment side'. Thus, the 'attachment portion' downwardly depending from the 'angled portion' of the joist attachment side' is substantially perpendicular to the 'spacing portion' of the 'rain-spacer side' that depends from the 'extended side' of the 'rain-spacer side'. In addition, a plurality of 'board spacer tabs' may be affixed at intervals to the 'rain-spacer side'. The applicants believe that the structure of the present invention is different from the Leavens invention in several significant ways that would prevent the Leavens invention from functioning in the same manner as the present

invention. The Examiner states that the 'extended portion' (Leavens-#32) and the 'angled portion' (Leavens-#46) form a wedge in combination with the vertically extending side of the supporting joist (Leavens-#94), and that this wedge is positioned between a base member (the 'rain-spacer side' of Leavens-#20) and a web member (the 'attachment portion' of Leavens-#42). The applicants respectfully submit that the 'rain-spacer side' (Leavens #20) that includes 'spacing portion' (Leavens-#22) and 'extended portion' (Leavens-#32) must be horizontally-extending to support deck boards that need to be substantially horizontally-extending for effective use, while the 'angled portion' (Leavens-#46) is oblique to the 'rain-spacer side' (Leavens #20) and 'attachment portion' (Leavens-#42). In contrast, the present invention has an opposite construction. It is the planar bottom surface of the present invention (Examiner designated equivalent of Leavens #20) that is oblique to its upstanding web member (Examiner designated equivalent of Leavens #42) and the portion of the wedge in the present invention that supports a valley truss (Examiner designated equivalent of Leavens #46 even though Leavens surface #46 is not in direct contact with any board or joist) is substantially perpendicular to the present invention upstanding web member (Examiner designated equivalent of Leavens #42). A further difference between the present invention and Leavens is that in the Leavens invention fasteners are inserted into the supported deck boards through 'angled portion' #46 and 'extended portion' #32. In contrast, fasteners in the present invention are inserted into a supported valley truss through the upstanding web member (Examiner designated equivalent of Leavens #42) and the portion of planar base member extending rearwardly from the upstanding web member (Examiner designated equivalent of Leavens #22). Also, fasteners through the upstanding web member of the present invention extend into a supported valley truss, while fasteners extending through the Examiner designated equivalent in Leavens ('attachment portion' #42) further extend into the supporting joist (Leavens #94). Thus, both the structure and orientation of the present invention uplift resistance strap are different than that disclosed by Leavens. In their claim amendments herein, the applicants have more specifically identified the configuration and

orientation of their uplift resistance strap to distinguish it from that disclosed by Leavens. Since their claim language no longer describes the Leavens invention, nor a combination of Leavens and the other cited prior art, the applicants respectfully request that the Examiner withdraw her rejection of claims 1, 2, 4, 7, 11-14, 17, and 19.

Claim Rejection – 35 U.S.C. 103

Claims 3 and 16 are rejected under 35 USC 103(a) as being anticipated by Leavens in view of Stuart. The Examiner uses Stuart to provide a three-sided wedge. However, as is noted above in the discussion of the Examiner's claim rejections under 35 USC 102, structure differences other than a three-sided wedge distinguish the present invention from the Leavens invention. Thus, the combination of Leavens and Stuart still does not disclose or teach an invention that is structurally like, or can perform the function of, the present invention. As a result the applicants respectfully request that the Examiner withdraw her rejection of claims 3 and 16.

Claims 5 and 20 are rejected under 35 USC 103(a) as being unpatentable over Leavens since laterally centered holes are an obvious matter of design choice. However, as is noted above in the discussion of the Examiner's claim rejections under 35 USC 102, structure and orientation differences other than laterally centered holes distinguish the present invention from the Leavens invention. Thus, Leavens does not disclose or teach an invention that is structurally like, or can perform the function of, the present invention. As a result the applicants respectfully request that the Examiner withdraw her rejection of claims 5 and 20.

Claims 10 and 18 are rejected under 35 USC 103(a) as being unpatentable over Leavens in view of Calhoun. The Examiner uses Calhoun to provide a two-layer base member construction. However, as is noted above in the discussion of the Examiner's claim rejections under 35 USC 102, structure differences other than a two-layer base member construction distinguish the

present invention from the Leavens invention. Thus, the combination of Leavens and Calhoun still does not disclose or teach an invention that is structurally like, or can perform the function of, the present invention. As a result the applicants respectfully request that the Examiner withdraw her rejection of claims 10 and 18.

Conclusion

Since the applicants herein have now amended their claims to disclose an invention different from Leavens and the other cited prior art cited by the Examiner, and they believe that they have not added any new matter, they respectfully request that the Examiner now reconsider their amended and new claims herein and allow them.

Respectfully submitted on behalf of Timothy M. Bronson and Brian V. Fiala by:

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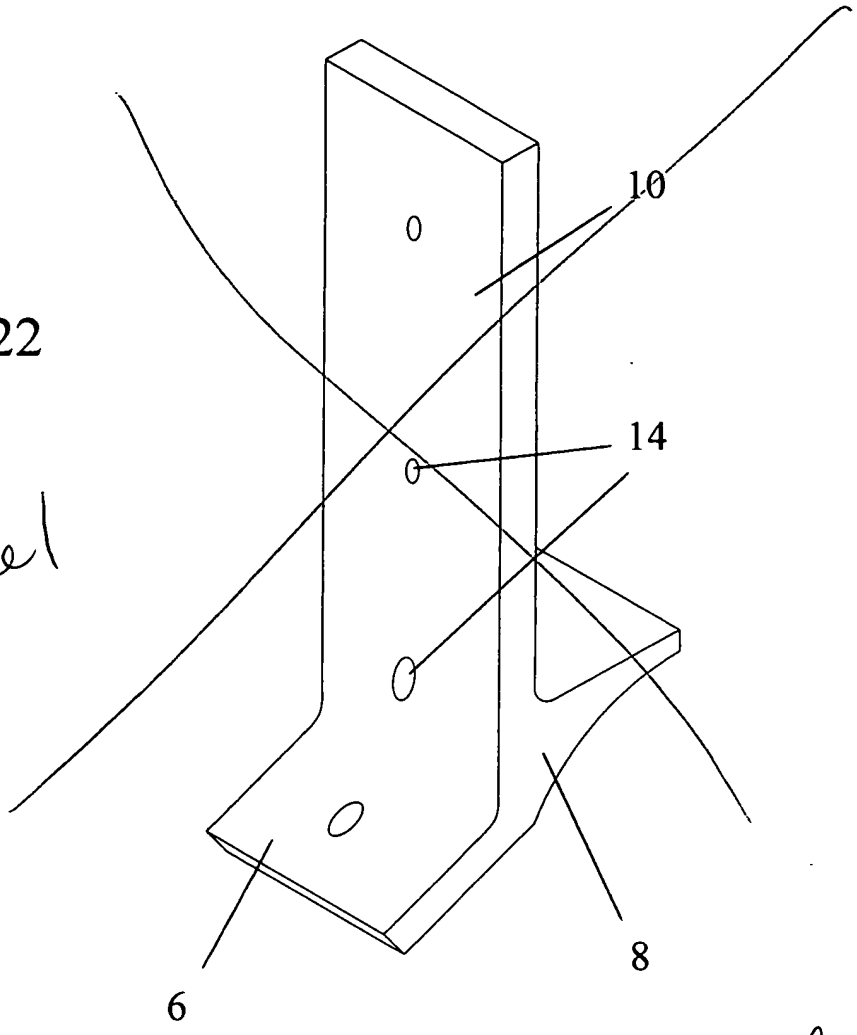
Fig 22



Cancel

Fig. 22 was proposed as a new Figure in the Election/Restriction Response filed 02/28/03 via fax

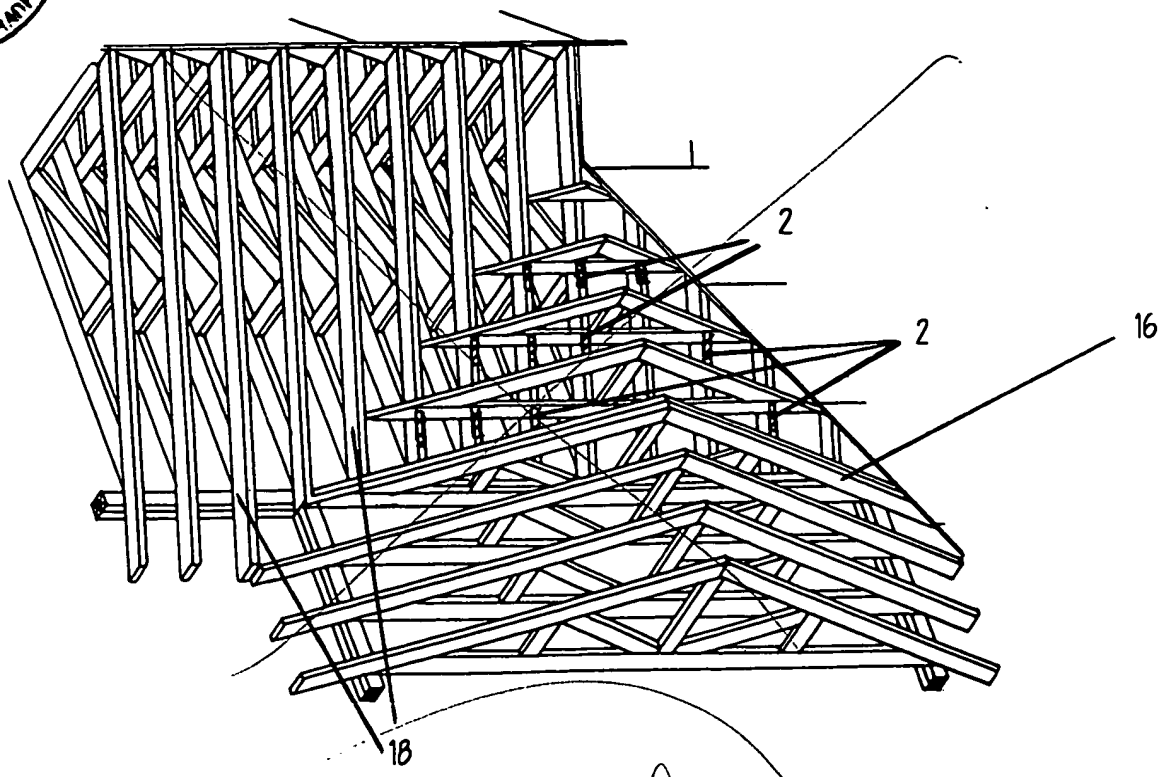
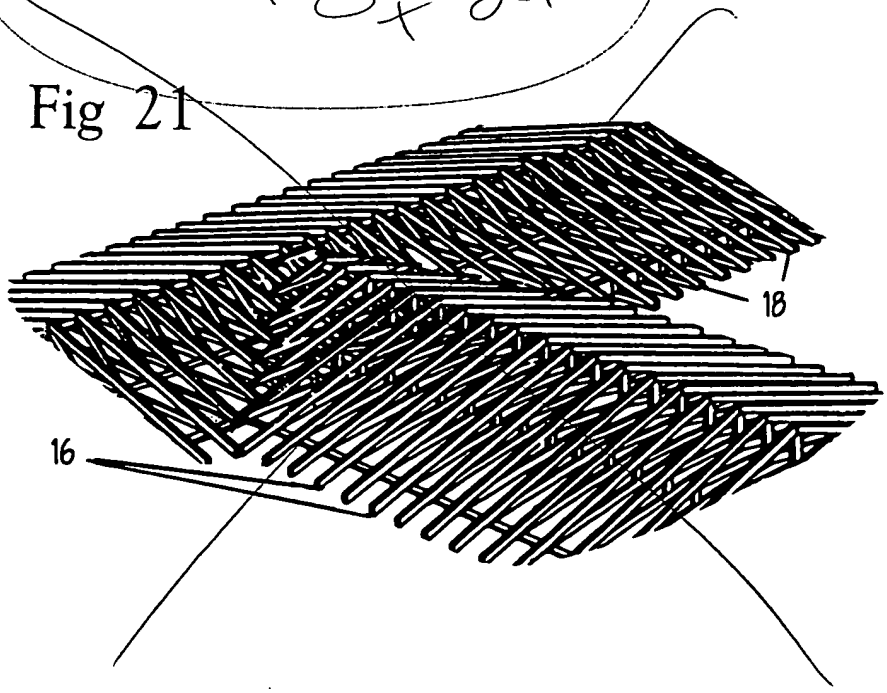


Fig 20

cancel original Figs. 20 + 21

Fig 21



#6½

Applicant:	Timothy M. Bronson and Brian V. Fiala
Serial Number:	10/044,108
Date Filed:	January 11, 2002
Title:	Valley Truss Uplift Resistance Strap With Wedge and Method of Use
Examiner:	Christy M. Green
Group Art Unit:	3635

MARKED-UP COPY OF SPECIFICATION – (Starting with Brief Description of the Drawings)
(deleted text has 'strike-through markings and additions are underlined)

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is perspective view of a first embodiment of the present invention having a planar base member, a web member upwardly extending from the base member at an acute angle, a wedge positioned within the acute angle, and a plurality of fastener holes through the web member and the opposing ends of the base member.

Fig. 2 is a front view of two first embodiment uplift resistance straps attached between a manufactured valley truss and two standard manufactured wood roof trusses supporting it.

Fig. 3 is a perspective view of the first embodiment connected between a vertically extending piece of construction material with a non-beveled bottom end, and the top chord of a standard manufactured wood roof truss.

Fig. 4 is a perspective view of the first embodiment connected between a non-beveled horizontally extending bottom chord of a manufactured valley truss and the top chord of a standard manufactured wood roof truss.

Fig. 5 is a top view of a second embodiment of the present invention in a substantially flat, unfolded condition.

Fig. 6 is a top view of the second embodiment in a partially folded condition.

Fig. 7 is also a top view of the second embodiment in a partially folded condition.

Fig. 8 is also a top view of the second embodiment in a partially folded condition.

Fig. 9 is a top view of the second embodiment in a nearly complete folded condition.

Fig. 10 is a top view of a third embodiment of the present invention in a substantially flat, unfolded condition.

Fig. 11 is a top view of the third embodiment in a partially folded condition.

Fig. 12 is a top view of the third embodiment in a nearly complete folded condition.

Fig. 13 is a perspective view of a fourth embodiment of the present invention in a partially folded condition.

Fig. 14 is a perspective view of the fourth embodiment in a nearly complete folded condition.

Fig. 15 is a perspective view of the fourth embodiment in its completely folded condition ready for use.

Fig. 16 is a top view of the fourth embodiment in a substantially flat, unfolded condition.

Fig. 17 is a perspective view of the fourth embodiment connected between a vertically extending piece of construction material with a non-beveled bottom end, and the top chord of a standard manufactured wood roof truss.

Fig. 18 is a perspective view of the forth embodiment connected between a non-beveled horizontally extending bottom chord of a manufactured valley truss and the top chord of a standard manufactured wood roof truss.

Fig. 19 is a side view of the fourth embodiment having a nail inserted through the lower portion of the web member, the wedge, and the base member.

Fig. 20 is a perspective view of a several present invention uplift resistance straps each connected with its wedge between the horizontally extending bottom chord of a manufactured valley truss and the top chord of a standard manufactured wood roof truss.~~Fig. 21 is a perspective view of two perpendicularly oriented roof structures having a valley therebetween in which the present invention could be used to provide uplift resistance.~~

Fig. 2~~2~~1 is a perspective view of a fifth embodiment of the present invention ~~having a molded construction~~having a nail inserted at an angle through its wedge.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention provides uplift resistance to roof construction where valleys occur, ~~two examples~~ an example of which ~~are~~ is shown in Figs. 20~~ and 21~~. Fig. 20 shows the construction of what could be a small porch roof connected to a larger roof structure behind it, with the nine standard roof trusses 18 in the larger roof structure below the four valley trusses 16 bearing perpendicular to the four overlaying ~~porch~~ valley trusses 16. This overlap of roof and ~~porch~~ valley trusses, (18 and 16 respectively), to fill in the roof plane, creates a valley. A girder truss 36 is shown in Fig. 20 separating the four valley trusses 16 from three additional standard roof trusses 18 that extend parallel to valley trusses 16. With use of the preferred embodiments of the present invention uplift resistance strap, such as straps 32 in Fig. 20, the sheathing (not shown) that covers the nine standard roof trusses 18 underlaying the four valley trusses 16 would not require a hole to enable connection between strap and standard roof truss 18, as required by prior art uplift resistance straps having a different structure and positioning. Instead, use of the present invention uplift resistance strap 32 would allow a two-point connection of its planar base member 6 and wedge 8 to a standard roof truss 18 positioned below, and a two-point connection of its web member 10 to the valley truss 16 supported by its wedge 8, with all four connections being made above the roof plane. ~~In contrast, Fig. 21 shows two full roof structures connected to one another in a T shaped configuration. The fill area where the roof structures overlap and a set of roof trusses 18 below bear perpendicular to a second overlaying set of roof trusses 16, also comprises a valley.~~ In addition to uplift resistance, the present invention ~~would~~ also provides a built-in wedge configured to level the overlaying valley trusses 16, without a need for beveling the bottom chord of each valley truss 16 or a need for the time-consuming on-site manufacture and installation of stand-alone wedges that allow a solid connection between supported valley trusses 16 and the sloping top chords of the standard roof trusses 18 beneath them. Further, the present would replace an elongated prior art tie-down strap that must be attached to adjoining trusses through a hole made on-site in the roof sheathing adjacent to the truss intersection. Thus,

connection of the elongated prior art tie-down straps is accomplished in a separate step following the step of attaching the valley truss to underlying standard roof trusses. Further, installation of the elongated tie-down strap typically requires two people, with one person positioned above the roof plane/sheathing to connect the upper portion of the elongated tie-down strap to the valley truss 16 and another person below the roof plane/sheathing to connect the lower portion of the elongated tie-down strap to the standard roof truss 18, or the same person to sequentially perform the upper and lower tie-down strap connections. In contrast, installation of the present invention is faster as it is used directly in the connection of a valley truss 16 to each of the standard roof trusses 18 supporting it, so that connection, leveling, and uplift resistance requirements are all satisfied in a single installation step. The present invention, already having a pre-formed wedge 8 incorporated therein, also eliminates a need for additional steps involving the creation and connection of a stand-alone wedge or subsequent tie-down connection at each intersection of a manufactured valley truss 16 to a standard manufactured wood roof truss 18. It is contemplated for the present invention to be made of rigid materials and have a unitary construction. However, the present invention can be made from plastic, nylon and other materials formed through molded construction, or in the alternative made from a stamped piece of rigid material, preferably galvanized steel, that is pre-formed into the approximate configuration shown in Fig. 1. The wedge of the present invention, pre-formed at a designated angle appropriate to the slope of the top chord in each of the underlying standard roof trusses 18 with which it is contemplated for use, provides leveling for an overlaying valley truss 16 without the costly, labor-intensive process of beveling the bottom surface of each valley truss 16, either during manufacture or on-site, or the creation and connection of stand-alone wedges that are connected between the bottom chord of a valley truss and the top chord of each standard roof truss 18 supporting it. The wedge 8 can be solid or hollow, depending upon the materials used for its construction. Further, since holes are pre-formed through the upwardly extending web member 10 and the base member 6 of the present invention, an installer is not confronted with the additional time delays resulting from

replacement of wooden wedges that split or crack during fastener attachment.

Fig. 1 shows a first embodiment 2 of the present invention having a planar base member with a first end 4 and a second end 6, and a web member 10 upwardly extending from second end 6 to form an acute angle 12 relative to first end 4. Although web member 10 appears to have approximately the same length dimension as first end 4 and second end 6, web member 10 could be shorter or longer than first end 4 and second end 6, with the length of web member 10 being determined by the governing uplift resistance code requirement. An embodiment where second end 6 is shorter that web member 10 and first end 4 has been omitted, is shown in Fig. 15. Fig. 1 also shows a wedge 8 positioned within acute angle 12, and connected between first end 4 and web member 10. The height of the taller end of wedge 8 would vary according to different pitch applications. Also, although not limited thereto, the upper surface of wedge 8, which provides the seat area for an overlaying valley truss 16, would preferably have a minimum surface area of approximately one-and-one-half square inches. Fig. 1 further shows two fastener holes 14 in web member 10, two fastener holes 14 in second end 6, and one fastener hole 14 in first end 4. The number, size, spaced-apart distance, alignment, and configuration of fastener holes 14 are not critical, and at a minimum would be sufficient to meet nailing and uplift resistance requirements of the local or regional building code. Fig. 1 also shows the distal ends of first end 4, second end 6, and web member 10, each being substantially rectangular in configuration and having chamfered edges to help resist bending the could otherwise occur from uplift. In addition to the configuration of corners appearing to be cut off at an approximate 45^{o} angle, it is considered to be within the scope of the present invention for the distal ends of first end 4, second end 6, and web member 10, to also have the rounded configuration shown in Figs. 5-9, or other linear, arcuate, or curvilinear configuration. It is contemplated that first embodiment 2 would be made from molded construction, using metal, plastic, nylon, or any other material permitted by code. One preferred plastic material is polycarbonate. Also, although not limited thereto and only provided as an example, it is contemplated that the length dimension of first embodiment 2, from the distal

end of first end 4 to the distal end of second end 6, would be a minimum of approximately four inches and a maximum of approximately twelve inches. The first embodiment shown in Fig. 1 could represent either a molded or folded uplift resistance strap. The taller end of wedge 8, which is shown in Fig. 1 in a position facing second end 6, has an open configuration expected in folded embodiments formed from the unfolded stamped configurations of second embodiment 24 and third embodiment 26, shown in Figs. 5 and 10, respectively, the vertical support for wedge 8 being derived from its rigid side structures. In contrast, the embodiments of the present invention made through molded construction could either have a solid wedge 8, or a hollow wedge 8 similar to that shown in Fig. 1.

Fig. 2 shows first embodiment 2 attached between the bottom chord of a valley truss 16 and the top chord of a standard roof truss 18 supporting it, with the valley truss 16 bearing perpendicular to the standard roof trusses 18. Although two first embodiment 2 attachments are shown, the number of first embodiments 2 connected between valley truss 16 and standard roof trusses 18 would be determined by the local building code. The upstanding web member 10 in each first embodiment 2 is connected to the downwardly facing side of a supported valley truss 16 through fasteners (not shown) inserted through fastener holes 14, while the second end 6 of each first embodiment 2 is connected to the top cord of the standard roof truss 18 supporting the same valley truss 16, also via a fastener (not shown) inserted through each fastener hole 14 present in the planar base member of first embodiment 2, which includes second end 6 and first end 4 (not visible in Fig. 2). As can be seen in Fig 4, the bottom surface 22 of the valley truss 16 would be supported and leveled by wedge 8. When the present invention is relied upon to provide a wedge 8 for non-beveled trusses 16, one first embodiment 2 would become connected at every intersection of valley truss 16 to standard roof trusses 18. As shown in Fig. 2 and mentioned above, the uplift resistance straps of first embodiment 2 are only secured on the side of valley truss 16 that is facing the downward sloping ends of the standard roof trusses 18 supporting it.

Fig. 3 shows first embodiment 2 connected between a vertically extending piece of construction material 20, perhaps a part of a manufactured valley truss 16, with a non-beveled bottom end 22, and the top chord of a standard roof truss 18. Fig. 3 shows second end 6 attached to the portion of standard roof truss 18 in a position downwardly extending below construction material 20, and web member 10 attached to the side of construction material 20 that faces the downwardly extending end of standard roof truss 18 supporting it. Fig. 3 further shows the non-beveled bottom end 22 of construction material 20 supported in a substantially level position upon wedge 8, and first end 4 positioned against the top chord of the portion of standard roof truss 18 upwardly extending beyond construction material 20.

Fig. 4 shows first embodiment 2 connected between a horizontally extending bottom chord of a manufactured valley truss 16 and the top chord of a standard roof truss 18. As shown in Fig. 4, first embodiment 2 is only secured to valley truss 16 via web member 10, and only on the vertical side of valley truss 16 that is facing the downwardly extending ends of standard roof trusses 18. Connection between first embodiment 2 and the top chord of a standard roof truss 18 is accomplished via the planar base member of first embodiment 2, which comprises second end 6 and first end 4. However, in some construction applications, as later seen in Figs. 19 and 21, other embodiments of the present invention only are connected to the top chord of a standard roof truss 18 via second end 6 and ~~This is in contrast to the fourth embodiment 32 shown in Fig. 19, wherein~~ the bottommost fastener hole 14b in web member 10 ~~is used in part to attach web member 10 to the top chord of the supporting standard roof truss 18~~. In Fig. 4, second end 6 is placed in a position adjacent to valley truss 16 and downwardly extending from valley truss 16 with fasteners inserted through fasteners holes 14 and secured between first embodiment 2 and standard roof truss 18, while first end 4 is placed in a position adjacent to valley truss 16 and upwardly extending therefrom, also being secured by fasteners inserted through fasteners holes 14. As shown in Fig. 4, wedge 8 is positioned under the bottom chord of valley truss 16. The degree of incline provided by wedge 8 can be varied during manufacture, to accommodate a

difference in roof pitch. Also, although not critical, Fig. 4 shows first end 4 and second end 6 extending the full width of standard roof truss 18. The width and thickness dimensions of first end 4, second end 6, and web member 10 can vary, so as to allow a balance between the need for cost-efficient construction and compliance with the governing code requirements. The relative dimensions of first end 4, second end 6, and web member 10 can also vary, as can the number and positioning of fastener hole 14 therethrough. Also, although steel and selected plastics, such as polycarbonate, are preferred for the manufacture of first embodiment 2, other materials can be used as long as they meet the necessary strength requirements to satisfy the governing uplift resistance code.

Figs. 5-9 show a second embodiment 24 of the present invention in an unfolded condition, and various phases of folding. In Figs. 5-9 the distal perimeter of first ends 4A and 4B, second ends 6A and 6B, as well as web member 10 are shown to have a rounded configuration. Although a blunt perimeter is favored for safety considerations to avoid injury, other perimeter configurations are also considered to be within the scope of the present invention, such as a rectangular configuration and the rectangle with chamfered ends shown in Figs. 10-12 for web 10, first side 4 and second side 6, wherein the corners of are all cut off at an approximate 45° angle. Fig. 5 shows second embodiment 24 in a substantially flat, unfolded condition. The arrows above web member 10 show that as the second embodiment 24 takes its final form, web member 10 would be moved rearwardly and away from second ends 6A and 6B. The arrows adjacent to second ends 6A and 6B, show that as the second embodiment 24 takes its final form, second ends 6A and 6B would each be moved forwardly and toward one another. Figs. 6, 7, and 8 show second embodiment 24 in a partially folded condition, with each successively higher numbered illustration showing second embodiment 24 progressively closer to its usable configuration, while Fig. 9 shows second embodiment 24 in a nearly complete folded condition. Fig. 6 shows second ends 6A and 6B closer together than in Fig. 5, with web member 10 more rearwardly positioned than in Fig. 5. Fig. 7 shows second end 6B being inwardly folded and

rotated approximately 180° from its original pre-folded position, with second end 6B being poised for a similar 180° inwardly folded rotation. Although second end 6B is shown undergoing the 180° rotation first, the order of such rotation is not critical. Fig. 8 shows both second ends 6A and 6B after undergoing a near 180° rotation, but not yet aligned with one another as they would be when second embodiment 24 has reached its final configuration. Fig. 10 shows second end 6B and first end 4B aligned with web member 10, with second end 6A and first end 4A needing approximately 90° more rotation for second embodiment 24 to reach its usable configuration, similar to that shown in Fig. 1. When folding is complete, wedge 8 in second embodiment 24 would have the same hollow configuration shown in Fig. 1. It is contemplated for second embodiment 24 to be made from rigid material, such as steel, plastic, or nylon, and have a substantially uniform thickness.

Figs. 10, 11, and 12 respectively show a third embodiment 26 of the present invention in a substantially flat unfolded condition, an intermediate folded condition, and a nearly complete folded condition. It is contemplated for third embodiment 26 to be made from rigid material, such as steel, nylon, or plastic, and have a substantially uniform thickness. Figs. 10-12 further show the planar base member having first end 4 and second end 6, and web member 10 all of similar length and width dimension, each as being substantially rectangular with chamfered distal ends, wherein the corners are all cut off at an approximate 45° angle. Fig. 10 shows third embodiment 26 in a substantially flattened condition, prior to folding. In Fig. 11, the arrows above web member 10 show that as the third embodiment 26 takes its final form, web member 10 would be moved rearwardly and away from wedge 8. The arrows adjacent to second end 6 and first end 4, show that as the third embodiment 26 takes its final form, second end 6 and first end 4 would each be moved forwardly and toward one another. Fig. 12 shows that first end 4 and second end 6 also undergo an approximate 180° rotation relative to their original pre-folded conditions, prior to the third embodiment 26 reaching its usable configuration. Either second end 6 or first end 4 can be folded in advance of the other, or both can be folded at once since there is

no overlap of one member relative to the other similar to that occurring in the folding of second embodiment 24. Fig. 12 shows second end 6 and first end 4 almost aligned with one another as they would be when third embodiment 26 has reached its final configuration, similar to that shown in Fig. 1, with third embodiment 26 having a hollow wedge 8. The adjoining surfaces of first end 4 and second end 6, which extend diagonally and form the bottom surface of wedge 8, can be bonded or welded to one another during manufacture, if needed to satisfy the governing code requirements.

Figs. 13-19 show a fourth embodiment 32 of the present invention in an unfolded condition, and various phases of folding, as well as in positions of use. Figs 13 and 14 show fourth embodiment 32 in partially folded conditions, while Fig. 16 shows fourth embodiment 32 in a substantially flat, unfolded condition and Fig. 15 shows fourth embodiment 32 in its completely folded condition ready for use. Fig. 15 shows the present invention having an upstanding web member 10, a hollow wedge 8 having an upper surface 28 extending forwardly from web member 10, a rearwardly extending second end 6, and several fastener holes 14. Second end 6 is significantly shorter than web member 10, and in fourth embodiment 32 no first end 4 is present. Another difference in fourth embodiment 32 is that wedge 8 has a vertical back wall containing fastener hole 14b1, instead of the laterally positioned walls shown in Fig. 1. A further difference between fourth embodiment 32 and the other illustrated embodiments of the present invention is that fourth embodiment 32 contains fastener holes 14b, 14c, 14b1, and 14c1, which collectively allow a fastener, such as fastener 34 in Fig. 19, to be secured through wedge 8. Although not limited thereto, Fig. 15 shows three fastener holes 14 through web member 10, with the upper holes being offset from one another as well as from the laterally centered bottom fastener holes 14. While the angle 12 between upper wedge surface 28 and web member 10 is shown in Fig. 15 to be approximately 90°, the intersection between the bottom surface of wedge 8 and web member 10 typically represents an acute angle more pronounced than illustrated. Fig. 16 shows fourth embodiment 32 in its flattened, unfolded condition. Moving from left to right in

the illustration of unfolded fourth embodiment 32 in Fig. 16, one first encounters web member 10 with three fastener holes, the bottommost of which is designated by the number 14b. To the right of web member 10, one next encounters rearwardly extending second end 6, with one centrally positioned fastener hole 14a. The bottom surface 30 of fourth embodiment 32 is situated to the right of rearwardly extending second end 6 and contains two fastener holes 14a1 and 14c. The upper surface of wedge 8 extends to the right of bottom surface 30 and has no fasteners holes 14. The remaining two sections of fourth embodiment 32 having centered fastener holes 14b1 and 14c1 are unnumbered and are reinforcement members for wedge 8, the one which contains fastener hole 14b1 forming a vertically extending back wall of wedge 8 during use. Thus, when fully formed, the structure of wedge 8 in the fourth embodiment would comprise open sides, a double layer of vertical support at its taller end, a partially doubled bottom surface 30, and aligned fastener holes 14b, 14b1, 14c, and 14c1 that would allow a fastener, such as fastener 34 in Fig. 19 to pass through both layers at the taller end of wedge 8, exit through both layers forming the bottom surface 30 of wedge 8, and enter the top chord of the standard roof truss 18 upon which the fourth embodiment 32 is supported during use. To fold fourth embodiment 32 into its usable configuration, the lower end of web member 10 is brought into contact with bottom surface 30 so that fastener holes 14a and 14a1 become aligned to form second end 6. As this occurs, rearwardly extending second end 6 becomes superimposed upon a portion of bottom surface 30. In a separate step, the opposing end on fourth embodiment 32 is folded to form wedge 8, with fastener hole 14b1 becoming aligned with fastener hole 14b in the lower end of web member 10, and fastener hole 14c1 becoming aligned with fastener hole 14c in bottom surface 30. Arrows in Figs. 13 and 14 show the directions of folding. Thus, it is contemplated for four fasteners, such as fastener 34 in Fig. 19 that is configured as a nail, to be used for securing fourth embodiment 32 in place during use. A first fastener 34 would extend through two fastener holes, 14a and 14a1 to connect second end 6 to the downwardly extending portion of the top chord of a standard roof truss 18. A second fastener 34 would extend through

two fastener holes, 14b and 14b1, further extend through wedge 8, and then finally through two additional fastener holes, 14c1 and 14c to connect web member 10 and wedge 8 to the top chord of the same standard roof truss 18. The final two nails 34 would each extend through a different one of the upper fastener holes 14 in web member 10 to connect web member 10 to the vertically extending side of valley truss 16 facing second end 6. Fourth embodiment 32 has the simplest construction, and would produce the least material waste during manufacture. It is contemplated for wedge 8 to be manufactured with varying pitch, depending upon the application, and for fourth embodiment 32 to be made from rigid material, such as steel, plastic, nylon, and have a substantially uniform thickness. As an alternative to folded construction, a molded embodiment similar to that shown in Figs. 15 and 19 is also considered to be within the scope of the present invention, and which would preferably have a solid wedge 8, as well as a fastener hole 14 through wedge 8 in a similar position to that shown for fastener 34 in Fig. 19. Although not limited thereto, such a molded embodiment could be made from plastic material, such as polycarbonate. Fig. 17 shows fourth embodiment 32 connected between a vertically extending piece of construction material 20 with a non-beveled bottom end 22, and the top chord of a standard manufactured wood roof truss 18, while Fig. 18 shows forth embodiment 32 connected between a non-beveled horizontally extending bottom chord of a manufactured valley truss 16 and the top chord of a standard manufactured wood roof truss 18. Although the upper surface 28 of wedge 8 is not marked in Fig. 17 or Fig. 18 for clarity of illustration, both Figs 17 and 18 show upper wedge surface 28 positioned entirely under the superimposed construction material, vertically extending piece of construction material 20 or manufactured valley truss 16, respectively. ~~Fig. 22 shows a fifth preferred embodiment of the present invention, similar in configuration to that shown in Fig. 15 and having a molded construction.~~

Fig. 20 shows several present invention uplift resistance straps, such as ~~first~~ fourth embodiments 32, each connected between the horizontally extending bottom chord of a manufactured valley truss 16 and the top chord of a standard roof truss 18. In the center of Fig.

20, one can see four valley trusses 16 supported by varying numbers of fourth embodiments 32, determined according to length and supported upon standard roof trusses 18 bearing perpendicular thereto. In the lower right portion of Fig. 20, three standard roof trusses 18, this time parallel to the four valley trusses 16, are separated from the valley trusses by a girder truss 36. ~~Fig. 21 is a perspective view of two perpendicularly oriented roof structures having a valley therebetween where the present invention could be used for uplift resistance.~~ As shown in Fig. 20, the web members 10 of ~~first~~ fourth embodiments 32 are only secured on the vertically extending side of valley trusses 16 facing the downwardly extending ends of standard roof trusses 18. It is contemplated that the web members 10 of the second embodiments 24, the third embodiments 26, and the ~~fourth~~ first embodiments ~~32~~ would also be connected to the sides of valley trusses 16 the downwardly extending ends of standard roof trusses 18, with the bottommost fastener hole 14b of fourth embodiments 32 being used with a fastener 34 that extends into the top chord of a supporting standard roof truss 18 and thereby connects web member 10 and wedge 8 to the supporting standard roof truss 18. The two top fastener holes 14 are used to secure web 10 to a vertically extending surface of valley truss 16, while the valley truss is levelly supported upon the top surface 28 of wedge 8, the slant of the bottom surface 30 of fourth embodiment 32, as determined by angle 12, complements the incline of the standard roof trusses 18 to place top surface 28 in a substantially horizontally extending orientation.

Fig. 21 shows a fifth preferred embodiment of the present invention, similar in configuration to that shown in Fig. 15 and having a molded construction. Fig. 21 is different from the fourth embodiment shown in Fig. 15 and 19 only in that the middle fastener hole 14 in Fig. 15 is not aligned with the top and bottom fastener holes 14 on web 10, and the fastener hole 14 through the bottom of wedge 8 is visible in Fig. 15, and not Fig. 21. The fourth embodiment 32 shown in Fig. 21 also has a second end 6 and web 10 having a greater thickness dimension than that shown in Fig. 15, none of which are critical differences. Figs. 21 and 19 both show a fastener 34 extending into the rear surface of web 10, through wedge 8, and beyond the bottom

surface 30 of wedge 8. Angle 12 varies according to the pitch established for the roof construction formed by the standard roof trusses 18 supporting valley trusses 16, so that the bottom surfaces 22 of the valley trusses 16 are always supported by top surface 28 in a level orientation.

Applicant:	Timothy M. Bronson and Brian V. Fiala
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Group Art Unit:	3635

MARKED-UP COPY OF CLAIMS
(deleted text is in brackets and additions are underlined)

1. (Currently Amended) An uplift resistance device, for use in roof construction where valleys are created to ~~support and~~ secure~~tie down manufactured~~ valley trusses ~~components~~ in a level orientation relative to supporting ~~structural woods members and manufactured wood~~ standard roof trusses ~~systems~~bearing perpendicular thereto, that ~~can be~~ is installed from a position solely above a roof plane and without~~cutting~~ making holes in ~~plywood~~ sheathing attached~~to~~ between the standard roof trusses and any valley trusses overlaying them, said device comprising:

a one-piece strap having a vertically extending web member with opposing sides and a lower end, a base member extending from one of said opposing sides of said web member at said lower end, and a wedge extending from the other of said opposing sides of said web member at said lower end, said wedge having a top surface and a tapered end remote from said web member, said base member being inclined at an angle relative to said web member corresponding to the pitch of the roof to be constructed therewith so that in its usable position said top surface will be substantially horizontally extending in orientation to provide level support of a valley truss without its modification~~with a wedge formed between a substantially planar base member and a web member extending upwardly from said base member at an acute angle, said wedge~~

~~having a taller end and an opposed tapered end, said taller end being adjacent to said web member, said base member extending rearwardly beyond said taller end of said wedge~~; and

a plurality of fastener holes formed through said base member and said web member, with the top ones of said fastener holes through said web member being configured and positioned for attachment to a valley truss supported on said top surface of said wedge and the bottommost one of said fastener holes through said web member and said fastener holes through said base member being configured and positioned for attachment to a supporting standard roof truss bearing perpendicular to the valley truss supported on said top surface of said wedge ~~for time saving construction~~ whereby a ~~manufactured~~ valley truss ~~component~~ can be placed without beveling modification for roof pitch upon said wedge of said strap and be subsequently secured to said strap for time saving construction. ~~by the use of a fastener inserted through each of said fastener holes in said web member with said strap and manufactured valley truss component combination being attached to structural woods members and manufactured wood roof truss systems through the use of a fastener inserted through each of said fastener holes in said base member~~.

2. (Original) The device of claim 1 wherein said strap is made from molded construction.

3. (Currently Amended) The device of claim 1~~2~~ wherein said strap has a ~~solid~~ closed wedge cross-sectional configuration with three perimeter sides.

4. (Original) The device of claim 1 further comprising one additional fastener hole through said base member in a position under said wedge and wherein the bottommost one of said fasteners holes through said web member is aligned with said additional fastener hole and

configured to allow insertion of a fastener through said wedge.

5. (Original) The device of claim 1 wherein the one of said fasteners holes through said web member that is closest in proximity to said base member is laterally centered, and the remaining ones of said fasteners holes through said web member are not laterally centered.

6. (Withdrawn) The device of claim 1 wherein said base member also extends forwardly beyond said tapered end of said wedge.

7. (Original) The device of claim 1 wherein said strap is made from folded construction having a hollow wedge.

8. (Withdrawn) The device of claim 7 wherein said wedge has opposing sides between said taller end and said tapered end adapted to provide vertical support for said wedge.

9. (Currently Amended) The device of claim 7 wherein said wedge is open-sided~~has open sides and a taller end with a closed configuration adapted to provide vertical support for said wedge~~.

10. (Original) The device of claim 7 wherein said base member has a two-layer construction.

11. (Original) The device of claim 7 wherein said strap has a rectangular unfolded configuration.

12. (Currently Amended) A method for use in roof construction where valleys are created to secure ~~support and tie-down manufactured~~ valley trusses with uplift resistance ~~components~~ to supporting ~~structural woods members and manufactured wood~~standard roof trusses ~~systems and provide uplift resistance~~ from a position solely above a roof plane, without ~~the need for cutting~~making holes in plywood sheathing attached to the ~~manufactured~~

~~wood~~standard roof trusses ~~system~~ or beveling modification of the ~~manufactured~~ valley trusses ~~components~~ to accommodate for roof pitch, said method comprising the steps of:

providing a plurality of one-piece straps each having a vertically extending web member with opposing sides and a lower end, a base member extending from one of said opposing sides of said web member at said lower end, and a wedge extending from the other of said opposing sides of said web member at said lower end, said wedge having a top surface and a tapered end remote from said web member, said base member being inclined at an angle relative to said web member corresponding to the pitch of the roof to be constructed therewith so that in its usable position said top surface will be substantially horizontally extending in orientation, ~~a wedge with a taller end and an opposed tapered end, a substantially planar base member, a web member extending upwardly from said base member at an acute angle,~~ and a plurality of fastener holes through said base member and said web member with the top ones of said fastener holes through said web member being configured and positioned for attachment to a valley truss supported on said top surface of said wedge and the bottommost one of said fastener holes through said web member and said fastener holes through said base member being configured and positioned for attachment to a supporting standard roof truss bearing perpendicular to the valley truss supported on said top surface of said wedge~~, said base member extending rearwardly beyond said taller end of said wedge~~;

providing a plurality of fasteners, a plurality of ~~manufactured~~ valley trusses ~~components~~, and a roof construction made from a plurality of ~~manufactured wood~~ standard roof trusses creating a intersection of two perpendicular roof planes~~system~~;

selecting the ones of said valley trusses collectively having the appropriate configuration to extend one of said roof planes over the other bearing perpendicular thereto;

temporarily securing each of said valley trusses in its usable position over said standard roof trusses;

placing at least one of said straps under each of said valley trusses at positions where said valley trusses intersect with said standard roof trusses below, with said top surfaces of said wedges in contact with said valley trusses; and

using one of said fasteners through each of said fastener holes in said placed straps to securely attach said placed straps to said standard roof trusses and said valley trusses for uplift resistance.

~~selecting one of said straps for each of said valley truss components intended for direct attachment to said manufactured wood roof truss system~~

~~inserting a different one of said fasteners through each one of said fasteners holes in said web members of said selected straps to attach each said selected strap to a different one of said valley truss components; and~~

13. (Canceled) The method of claim 12 wherein ~~the bottommost portion of each of said web members is adapted to function as the taller end of said wedge, and further comprising the steps of inserting one of said fasteners through said bottommost portion and through said wedge prior to inserting said same fastener through said base member~~.

14. (Original) The method of claim 12 wherein said straps are made from molded construction.

15. (Withdrawn) The method of claim 12 wherein said base member also extends

forwardly beyond said tapered end of said wedge and further comprising the steps of inserting one of said fasteners through said bottommost portion and through said wedge prior to inserting said same fastener through said base member.

16. (Currently Amended) The method of claim 15~~4~~ wherein said strap comprises a ~~solid~~ closed wedge cross-sectional configuration with three perimeter sides.

17. (Currently Amended) The method of claim 12 wherein said strap is made from folded construction ~~having a hollow~~ and has an open-sided wedge.

18. (Currently Amended) The method of claim 17~~6~~ wherein said base member has a two-layer construction.

19. (Currently Amended) The method of claim 17~~6~~ wherein said strap has an unfolded configuration that is rectangular.

20. (Original) The method of claim 12 wherein the one of said fasteners holes through said web member that is closest in proximity to said base member is laterally centered, and the remaining ones of said fasteners holes through said web member are not laterally centered.

21. (New) The device of claim 7 wherein said wedge is open-sided and has a two-layer construction.

22. (New) The device of claim 21 wherein said strap has a rectangular unfolded configuration.

23. (New) The method of claim 18 wherein said strap has an unfolded configuration that is rectangular.